DOCUMENT RESUME

ED 471 549 TM 034 651

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TITLE	All We Need Is a Little Class.
PUB DATE	2002-11-00
NOTE	24p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Chattanooga, TN, November 6-8, 2002).
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	*Class Size; Elementary Education; *Elementary School Teachers; *Instructional Effectiveness; *Interaction; *Teacher Student Relationship; Teaching Methods

ABSTRACT

This study was designed to discover the nature of interactions between effective teachers in regular-sized classes with 25 or more students and small-size classes with fewer than 18 students. Eleven public school primary classrooms were observed, and the interactions between the teacher and students were studied. Verbal and nonverbal interactions were recorded and categorized using emergent and a priori categories to discover similarities and inconsistencies when comparing regular and small-sized classes. The a prior categories of R. French and C. Galloway (1970) of institutional tasks, personal, and mixed were used to determine if the data gathered were consistent with interactions previously recorded (C. Evertson and J. Folger, 1989). As in previous studies, teachers in the small classes spent more time on task-related interactions than teachers in the regular-sized classes. Teacher in regular classes spent more time on institutional interactions. The emergent categories of positive attention and examples, negative attention, acknowledgment, directives, and procedural were documented. When all of the interactions were compared, teachers in small classes were observed sharing more separate interaction events than teachers in regular-sized classes, and they were devoting more time to interactions that were task-related and less time to negative behaviors than the regular-sized classroom teachers. Those teachers spent more time on interactions that were not related to the learning objectives. Administrators must consider the impact of primary classes with fewer students. Interactions are one facet of this complex environment. Students and teachers benefit from reflective practice involving productive, nurturing interactions. (Contains 2 figures, 1 table, and 45 references.) (Author/SLD)

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ED 471 549

All We Need Is a Little Class

Paper Presented at

MidSouth Educational Research Association

Annual Meeting, November 6-8, 2002

Chattanooga, Tennessee

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TM034651

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Abstract

All We Need Is a Little Class

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Primary students who attend school in classes with fewer children have been shown to have increased achievement (Word, et al. 1990). More information is needed to discover what happens when fewer children are in primary classrooms (Finn, 1998).

This study was designed to discover the nature of interactions between effective teachers in regular-size classes with 25 or more students and small-size classes with less than 18 students. Eleven public school primary classrooms were observed and the interactions between the teacher and students were studied. Verbal and nonverbal interactions were recorded and categorized using emergent and *a priori* categories to discover similarities and inconsistencies when comparing regular and small-size classes.

French and Galloway's (1970) *a priori* categories of institutional, task, personal, and mixed were used to determine if the data gathered were consistent with interactions previously recorded (Evertson & Folger, 1989). As in previous studies, teachers in the small-size classes spent more time on task- related interactions than the teachers in regular-size classes. Those teachers in regular-size classes spent more time on institutional interactions (Achilles, Kiser-Kling, Owen, & Aust, 1994).

The emergent categories of positive attention and examples, negative attention, acknowledgement, directives, and procedural were documented. When all of the interactions were compared, teachers in small classes were observed during more separate directive interaction events than teachers in regular-size classes and they were devoting more time to interactions that were task-related and less time to negative behaviors than the regular-size classroom teachers. The regular-size class teachers spent more of their time on interactions that were not related to the learning objectives.

Administrators must consider the impact of primary classes with fewer students. Interactions are one facet of this complex environment. Students and teachers benefit from reflective practice involving productive, nurturing interactions.

All We Need Is a Little Class

Jean Krieger, University of New Orleans

Previous Research

Class size has been a topic that has been discussed and studied for years (e.g., Achilles, 1996; Achilles, 1998a; Bourke, 1986; Mosteller, Light, & Sachs, 1996; National Education Association, 1962; National Education Association, 1977; Odden, 1990; Slavin, 1994). The earliest great teachers, Plato, Socrates, and Aristotle, worked with very small groups of students; many times they worked with only one student at a time (Achilles, 1999). In the early nineteenth century, students were placed in very large groups, sometimes consisting of more than one hundred students, to be monitored by student teachers. This monitorial method of education was very popular at first. By the 1840s, however, people realized that only the barest minimum of learning was occurring in these huge groupings (Ornstein & Levine, 1985).

Research on the significance of class size can be found as early as 1893 with a study by J. M. Rice. He concluded that student achievement was not affected by class size (Robinson & Wittebols, 1986). In the 1970s it was reported that the research on class size until that time had been inconclusive (Egelson, Harman, & Achilles, 1996). However, when Glass and Smith (Glass, Cahen, Smith, & Filby, 1979) published their meta-analysis, attention was drawn to their conclusions, which indicated that reduced class size did produce increased student achievement. Even though there were critics of the Glass and Smith report, there

was an obvious impact on educational policies (Egelson, Harman, & Achilles, 1996).

Purpose

The purpose of this exploratory descriptive study was to determine the nature of interactions between effective teachers and their students in the primary grades of a public suburban school district when class size is considered. The two types of classes observed were small classes consisting of fewer than 18 students and regular classes consisting of 24 or more students. This descriptive study provides the data to answer the following question:

> What is the nature of interactions occurring between students and effective teachers in small-size and regular-size classes?

Significance of the Study

This study investigated the nature of interactions between effective teachers and their students. Previous researchers have stated that much more inquiry is needed to determine exactly what happens in classrooms when class size is decreased. Several researchers have found evidence of increased student achievement in smaller classes (Finn, 1998; Boyd-Zaharias & Pate-Bain, 2000; Wang & Stull, 2000). What accounts for those differences? There is evidence that interactions of a more personal nature between students and teachers encourage children to perform better at school (Grant & Rothenberg, 1986). Results of studies have shown that students' achievement levels are higher in classrooms with caring environments and with teachers who have high expectations of them (Good & Brophy, 1971; Grant & Rothenberg, 1986; Jones &

Gerig, 1994; Morine-Dershimer, 1983). Researchers have shown that student achievement is correlated with class size, but they have not demonstrated how the interactions of successful teachers can be even more effective. This in-depth study of the nature of classroom interactions in small classes of effective teachers provides information to help guide policy makers and educators attempting to explain factors related to student achievement.

Context

The classes observed in this study were in a public school district with more than 32,000 students in the southeast. Through the strategic planning process, this district identified areas of need on which to focus. Among the areas identified as those in need of improvement were class size, retaining qualified teachers, attracting more minority teachers, and providing planning time for elementary teachers. When prioritizing this list, class size was the issue selected to be the focus of the five-year strategic plan, as funding permitted. Through this planning process, school administrators hoped to implement policies to meet the needs of all students in the district.

Overview of Methodology

Principals were asked to identify effective teachers within their primary public schools who were teaching classes fitting the class-size requirements of 18 students or less and 24 students or more. After gaining their informed consent, these teachers and students were observed to gain information about the nature of interactions occurring in the classrooms. Four teachers with small-size classes and seven teachers with regular-size classes were included in this study.

Kindergarten, first, and second grade classes from three schools in one suburban public school district were observed. Schools were matched to be similar with regard to socio-economic factors, type of school, ethnic and cultural variations, and type of classroom assignment.

The observations were recorded with videotape for a minimum of one and one half hours each during three separate observations. I viewed the videotapes and recorded the interactions occurring between teachers and students. I noted commonalties and identified emerging categories using open coding (Marshall & Rossman, 1995; Miles & Huberman, 1994). I formed the initial categories of information about the interactions being studied by segmenting the information. Within these initial categories, I identified properties, or subcategories, looking for data to dimensionalize, or show the extreme possibilities on a continuum (Creswell, 1998).

I was the primary instrument in this study. Using constant comparative analysis, I determined the nature of the interactions through an initial scan and multiple subsequent viewings of the videotapes. I recorded the dialog between teacher and student, the teacher's proximity to student, and nonverbal cues such as body leaning, facial expression, and tone of voice. I also recorded the lengths of engagement of these interactions. These notes were used to describe the nature of classroom interactions in small and large classes.

Types of Interactions

The interactions that were observed in the 11 primary classes varied from teacher to teacher regardless of the class size. Overall, each category of verbal

interaction, whether the emergent categories of acknowledgement, positive attention, negative attention, positive example, procedural, or the *a priori* categories of institutional, task, or personal were seen in almost all observations. In all cases, the nonverbal communication affected these communication events. The duration of the communication events affected the time available for learning.

The teachers with fewer students spent more time using task-related remarks, increasing the opportunity for classroom learning activities, as found in previous research (Finn, 1998). They did not have to redirect their students as frequently. The verbal redirections were made more quickly, taking less time away from the classroom learning activities. In fact, in several instances the teachers gave stern looks to the students to help them remember to be on task.

Teachers in small classes used more nonverbal facial expression and eye contact than did teachers in regular-size classes. The comments that the small-class teachers made for redirection were briefer than the other teachers' comments. The teachers in small classes moved around the classroom, working with the whole group of students or working with small groups as the other children worked independently. In none of the observations were the small class teachers found calling out to children across the room. However, in several instances the teachers in the regular classes spoke loudly across the room. Several regular class teachers mentioned "yelling" or speaking loud enough to be able to "get over" the noise of the students. Some regular-size class teacher made loud, sarcastic remarks.

Although there were more negative attention remarks in the regular-size classes than in the small-size classes, many positive examples and positive attention remarks were observed in the regular-size classes. This may be because, in a regular-size class, there were more negative behaviors, requiring more positive examples to motivate the children. This would account for the small-size class teacher being able to devote communication to remarks directing more time to the task of teaching.

Students need specific feedback that offers them a chance to modify their tasks so they can be successful. The teachers in regular and small-size settings provided many acknowledgments for behaviors. There was ample opportunity for more specific feedback in every setting. Offering a communication event of "All right," or "Okay," may give the students the idea that something pleased the teacher. With young children especially, it would be helpful to provide more information so they could understand exactly the type of behavior that the teacher finds appropriate. While acknowledgements are easily dispersed in any class, the greater amount of time spent in redirection was the distinguishing characteristic of the regular-size classes.

Communication Events Comparison

The communication events categorized in this study as institutional, task, personal, or mixed were found to be consistent with previous research (Achilles, Kiser-Kling, Owen, & Aust, 1994). In the "Success Starts Small" study, a greater percentage of on-task communication events occurred in the smaller classes. All of the small classes in this study had more interactions from the task category, with 3

out of the 4 small classes having at least 70% of their interactions directed toward task-related issues. Six out of the seven regular classes had less than 50% of their interactions from the task category. Five of the regular classes had more than 50% of the recorded interactions from the institutional category. The teachers in the regular classes were spending more time providing students with instructions about behavior, reminding them about classroom rules, or talking about events such as an upcoming field trip.

Students who spend more time on task will have increased achievement (Achilles, Kiser-Kling, Owen, & Aust, 1994; Gettinger, 1985; Lasley & Walker, 1986; Rich & McNelis, 1987; Unruh, 1996; Walberg, Niemiec, & Frederick, 1994). Overall, the students in the smaller classes were exposed to more communication events associated with the lessons at hand. They had more opportunity to devote their time to the learning tasks.

Others have found that students of effective teachers who are provided a structured environment that promotes a positive climate have an opportunity for increased achievement (Gareau & Kennedy, 1991). The use of positive communication in classrooms has been shown effective in helping students feel comfortable in their work environment (Dannefer, Johnston, & Krackov, 1998; Spangler, 1997). Borich (1996) made the point that the teacher is the most important element in determining the climate of the classroom through physical arrangement and promotion of a particular style of communication. By allowing the children to express their ideas in a positive environment, the children feel more at ease. They will attempt tasks that are challenging, knowing that they are in a safe

place to try again if their attempts are not successful the first time. Although student behavior was not coded in this study, the teachers in the small-size classes did use many more positive than negative remarks with their students. Given previous research, one might expect that these students would feel more comfortable engaging in challenging tasks.

Evidence from the emerging categories showed that there were fewer negative comments in the smaller classes. Those comments were seen 7%, 9.1%, 10.8% and 13.9% of the time in those four classes. However, negative remarks were made 5.1%, 6.6%, 11%, 17.2%, 22.2%, 26.7% and 32.1% of the time in the seven regular size classes. While three of the regular-size class teachers were similar in use of negative comments to small-size class teachers, four of the seven used negative remarks in 17-25% of their interactions with children. Negative responses are not effective in alleviating negative behaviors (Kounin & Gump, 1961). Classes with too many negative responses to students' behaviors can cause needless anxiety or resentment. Learning is pleasant for students when they are given information in a positive instead of a negative way (Good & Brophy, 1971).

In the smaller classes, the teachers provided more directives, acknowledgements, and positive remarks than in the classrooms of the teachers with more students. In the regular size classes, generally more time was spent on institutional interactions than on task-related comments. In the smaller classes, much more of the teachers' remarks were concerning tasks.

Table 1 compares the findings using the emergent categories of acknowledgement, positive example, negative example, directives and procedural remarks with the *a priori* categories of institutional, task, and personal events. The plots in Figures 1 and 2 (Appendices) graphically depict the differences in key categories between small and regular-size classes.

In this study, small-size classes were found to have more task-related events and fewer institutional events than regular-size classes. Moreover, all small-size classes had fewer institutional interactions and more task interactions. These findings support the seminal work of Achilles, Kiser-Kling, Owen, and Aust (1994) who reported 87% teacher time-on-task in small-size classes as compared to 67% in regular-size classes (Achilles, 1999).

The overall climate of each classroom varied from teacher to teacher. There were regular-size classes where the teachers spent most of the communication time on issues related to behaviors and not related to the academic tasks to be accomplished. According to Borich (1996), the classrooms that were set up with the students sitting at individual desks that were segregated from one another were offering a competitive classroom climate. Activities that would be seen in those settings would be the drill and practice type of activities. In several of the regular-size classes, that is exactly what was observed. The students were sitting quietly, with no interaction encouraged between them. The teacher was the authority who presented the information and evaluated the responses.

The classes with fewer students had more room so children could move around the room. These children had opportunities to work together. Borich (1996)

Table 1. Emergent and *a priori* category comparison

Name	% Acknowledgement	% Positive Example	% Negative Attention	% Positive Attention	% Directives	% Procedural Mixed	Institutional	Task	Personal	
S1	19.4	14.0	9.1	6.2	51.2	0.0	28.3	71.3	0.4	0
S2	5.0	38.7	13.9	8.4	34.9	0.0	22.0	76.6	1.5	0
S3	12.3	8.8	7.0	5.3	66.7	0.0	21.1	78.3	0.5	0
S4	21.1	16.0	10.8	3.6	48.5	0.0	47.7	49.41	2.9	0
R1	11.0	37.0	11.0	1.4	34.2	5.5	31.6	68.3	0.0	0
R2	3.9	37.0	6.6	5.5	46.4	0.1	83.1	15.1	1.8	0
R3	13.1	28.6	32.1	4.8	21.4	0.0	64.4	35.6	0.0	0
R4	18.6	18.1	17.2	6.8	39.4	0.0	47.1	48.4	4.6	0
R5	28.8	22.0	5.1	4.2	39.8	0.0	63.3	35.1	1.6	0
R6	5.2	28.1	22.2	1.3	42.5	0.7	50.5	46.5	3.0	0
R7	28.3	22.0	26.7	1.0	22.0	0.0	52.2	41.3	6.5	0

S = small (n = 18 or fewer students)
R = regular (n = 24 or more students)

described the cooperative classroom climate where small and large group discussions were encouraged. The teachers in those environments did spend time encouraging interaction between the children. The children in the small-size classes were able to work together to formulate new ideas about their tasks. The small-size classes in this study were observed working in small groups with the teacher rotating among the groups facilitating the learning.

Molnar (1998) found that when class size is appropriate "(a) children receive more individualized instruction; (b) teachers can focus more on direct instruction and less on classroom management; (c) students become more actively engaged in learning than peers in large classrooms; (d) teachers identify learning disabilities sooner, but fewer children end up going into special education classes because teachers can support them within small classes; (e) teachers are more able to give children from low-income families and communities a critical, supportive adult influence; (f) teachers are better able to engage family members and to work with parents to further a child's education; and (g) teachers of small classes less often burn out" (p.38). These findings suggest that smaller classes provide opportunities for the successful implementation of many elements that give students the most optimum conditions for education. According to Anderson (2000) "smaller classes provide opportunities for teachers to teach better; they do not cause teachers to do so" (p.22). The teachers of small-size classes observed in this study generally made remarks focused on more direct instruction and they spent less time on classroom management issues.

Organization of Classroom Space

The organization of the classroom space in some of the classes promoted more student-to-student interaction. The teachers in small-size classes had their classrooms set up so children could work together easily. Borich (1996) suggested that classroom setups and furniture arrangement could have an impact on classroom climate. The teachers in the small-size classes had setups that would allow students to work cooperatively in small groups. The regular-size classes were not able to provide the same type of setup simply due to the space available. In the classrooms with the desks in rows facing the front it appeared that all students should provide responses to the teacher who would be the one person to decide which child would respond and when.

When students are encouraged to interact with one another they become excited about learning and develop an interest in each other (Brooks, 1999; Krieger, 1998; Noddings, 1992). The furniture arrangement in the small classes was with either tables for four students or with tabletop desks arranged in groups of four. The regular classes had separate desks arranged in rows facing in one direction. In most of the regular classes students were not observed working in small groups. The classroom arrangements observed in the regular classes generally did not promote interaction between children. The setups of the smaller classes allowed for more student-to-student interaction, as well as, more opportunities for the children to work in small groups with the teacher and each other.

Caring in Classrooms

> Caring is central to the shaping of relationships that are meaningful, supportive, rewarding, and productive. Caring happens when children sense that the adults in their lives think they are important and when they understand that they will be accepted and respected, regardless of any particular talents they have. Caring is a product of a community that deems all of its members to be important, believes everyone has something to contribute, and acknowledges that everyone counts (Elias et al., 1997, p. 6).

According to Brooks (1999) and Noddings (1992), students need to belong and feel connected to those in their class and school environment. The social environment along with the organization of classroom space can encourage the students' sense of belonging. In a caring environment a sense of fairness prevails. Students are successful since the teacher has developed realistic expectations and goals.

Responsibility

Ultimately, it is the classroom teacher who bears the responsibility of educating the students with the support of the school administration, office staff, community, and parents. She must make sure that the children learn, that they want to learn, and that they will learn effectively so that they can become productive citizens. It is this responsibility that makes teaching such a demanding and stressful job (Manke, 1997). As effective teachers are seen keeping the focus on their selected agenda, then learning will take place.

Accountability is forever a factor of concern for effective teachers. Molnar (1998) stated that teachers with fewer students suffered burnout less frequently. The teachers with fewer children are able to focus on task-related communications, which has been shown to increase achievement. Knowing that they are able to accomplish the goals that they have planned for their students should allow the teachers to have a sense of success.

Implications

In all classrooms administrators expect to see the normal classroom discourse that involves initiation of interaction by the teacher, response by the student, followed by evaluation by the teacher. However, for increased student achievement to occur, there should be high-quality classroom discourse (Nystrand & Gamoran, 1991). This higher level of discourse involves a conversation between the teacher and the students. The interactions become a true discourse of give and take between the participants. Does smaller class size offer an opportunity for higher-quality discourse? Clearly, from this study, it is evident that discourse is more closely related to curriculum for longer periods of time.

The assumption can be made that teachers with fewer students have a greater sense of satisfaction and enthusiasm and, therefore, provide more effort to accomplish the job of teaching. According to Anderson (2000), the results are that students in smaller classes have better opportunities to learn and increased achievement when compared to their counterparts in regular-size classes. Finn (1998) suggested that effective teachers with fewer students use the more personalized environment to produce time efficiency. How do effective teachers use

time in their classes to provide more learning opportunities? How do classroom interactions fit into this time-management scheme? It appears from this study that effective teachers in small-size classes are able to provide more learning opportunities because they spend less time redirecting student attention.

As we continue to learn more and more about ways to help teachers do their jobs more effectively, we cannot lose sight of the success that has been shown with smaller classes. Let's not reinvent to wheel. Let's use methods for improving student achievement that work!

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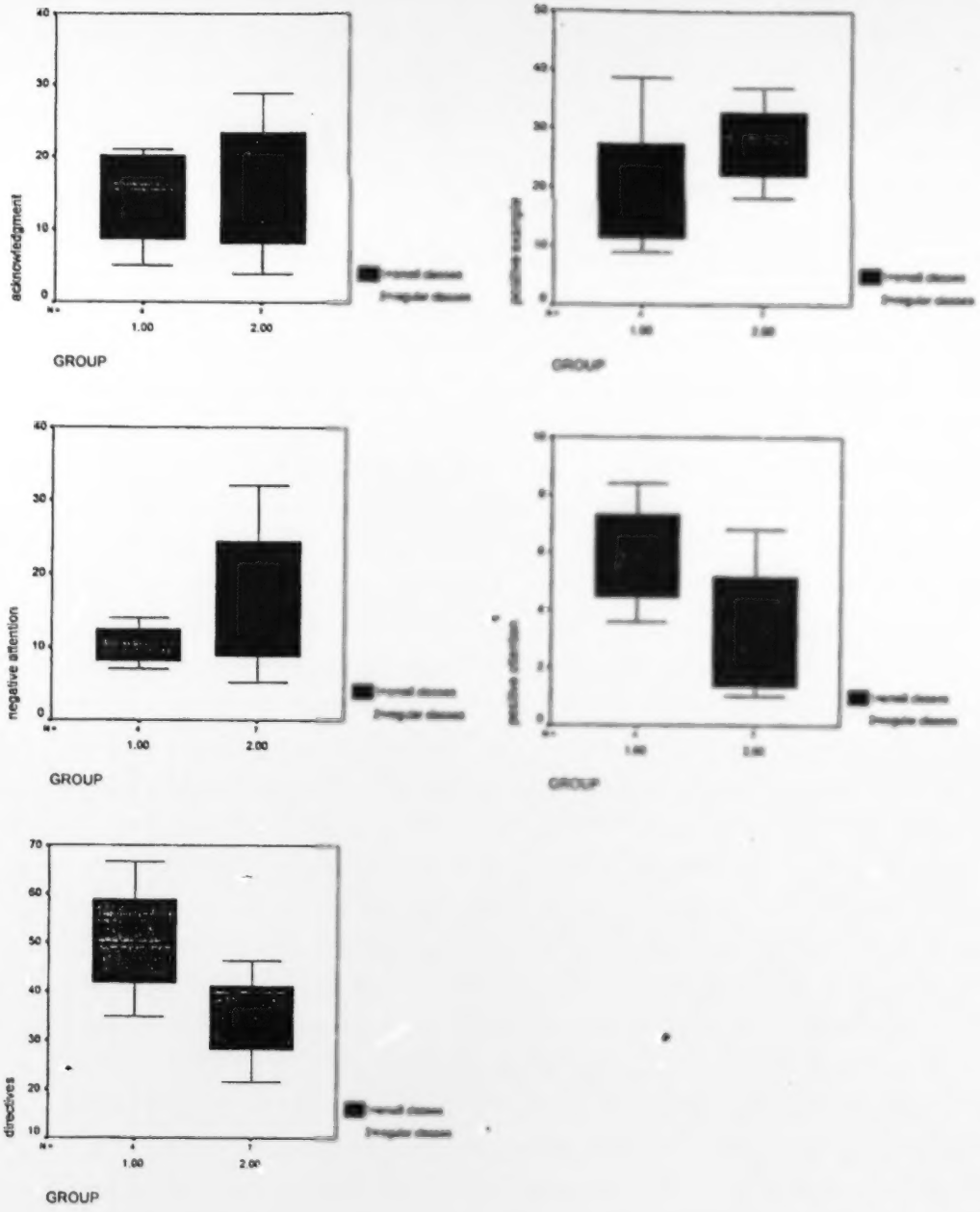

Fig. 1. Comparison of small and regular-size classes on emergent categories

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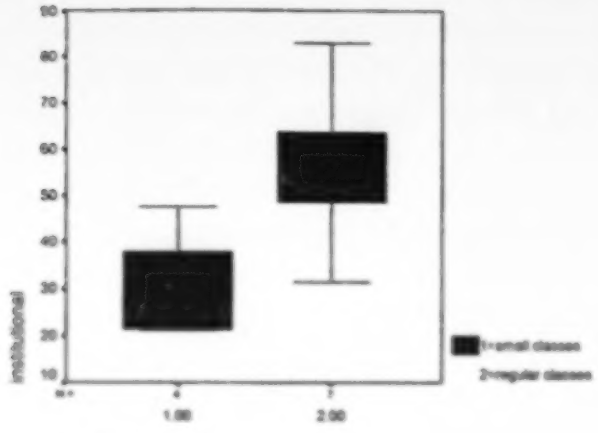

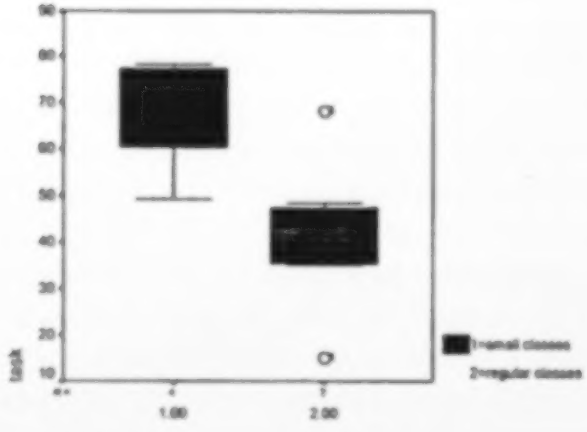

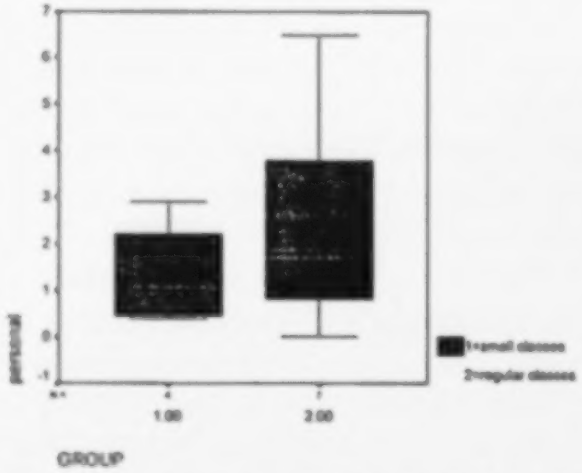

Fig. 2. Comparison of small and regular-size classes on *a priori* categories

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